

Borehole

30-04-03**Log Event A****Borehole Information**

Farm : <u>C</u>	Tank : <u>C-104</u>	Site Number : <u>299-E27-116</u>
N-Coord : <u>42,817</u>	W-Coord : <u>48,365</u>	TOC Elevation : <u>646.00</u>
Water Level, ft :	Date Drilled : <u>7/31/1974</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness, in. : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>50</u>	

Borehole Notes:

This borehole was drilled in July 1974 and completed to a depth of 50 ft with 6-in. casing. The casing thickness is presumed to be 0.280 in., on the basis of the published thickness for schedule-40, 6-in. steel tubing. No information was available that indicated the borehole casing was perforated or the borehole grouted; therefore, it is assumed that the borehole was not perforated or grouted. The top of the casing, which is the zero reference for the SGLS, is flush with the ground surface.

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1996</u>	Calibration Reference : <u>GJO-HAN-13</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>02/14/1997</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>16.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>02/18/1997</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>15.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>22.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>02/18/1997</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>22.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>R</u> Shield : <u>N</u>
Finish Depth, ft. : <u>25.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

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Log Run Number :	<u>4</u>	Log Run Date :	<u>02/19/1997</u>	Logging Engineer:	<u>Bob Spatz</u>
Start Depth, ft.:	<u>49.0</u>	Counting Time, sec.:	<u>100</u>	L/R : <u>L</u>	Shield : <u>N</u>
Finish Depth, ft. :	<u>24.0</u>	MSA Interval, ft. :	<u>0.5</u>	Log Speed, ft/min.:	<u>n/a</u>

Analysis Information

Analyst : E. LarsenData Processing Reference : P-GJPO-1787Analysis Date : 07/29/1997**Analysis Notes :**

This borehole was logged by the SGLS in four log runs. High dead time (greater than 50 percent) was encountered during log run two at a depth of 22.5 ft. As a result, log run three was logged in real time from 22 to 25 ft. Log run four was logged in live time from 49 to 24 ft, after the dead time dropped below 50 percent.

The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The man-made radionuclides Cs-137, Co-60, and U-235 were detected around this borehole. Cs-137 contamination was detected continuously from the ground surface to 28 ft and at the bottom of the logged interval (48 to 49 ft). The Co-60 contamination was detected continuously from 26 to 49 ft. A single occurrence of U-235 was detected at the ground surface.

The K-40 and Th-232 concentration data are absent between 22 and 24 ft. Most of the U-238 concentration data are absent between 21 and 40.5 ft.

The K-40 concentration values increase from 37 to 38 ft and remain elevated to the bottom of the logged interval.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank C-104.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the



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spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

A plot of representative historical gross gamma-ray logs from 1980 to 1994 is included. The headings of the plots identify the date on which the data in the plots were gathered.